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NOVEMBER 11, 1985

CHEMICAL & ENGINEERING

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Vibrational optical activity techniques become routine
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CHEMICAL & ENGINEERING NEWS

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NOVEMBER 11, 1985

News of the Week

■ **Genetic engineering work at Monsanto brings scientists closer to conferring herbicide resistance on commercial crops.** **Page 4**

■ **Neuroscience research institute, a collaboration of Italian drug firm Fidia and Georgetown University, begins operation.** **Page 5**

■ **EPA approval of first field test of genetically engineered bacteria is expected this week.** **Page 5**

■ **Second meeting on the Pimentel Report brings forth lively discussion on implementation efforts.** **Page 6**

Business

Chemical industry earnings fell an average of 19% in the third quarter compared with year-earlier levels. **Page 10**

International Business

Canadian chemical companies in better shape than last year, with organics leading the upturn. **Page 16**

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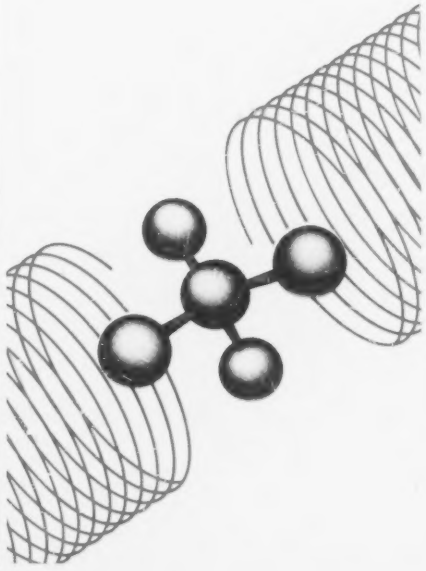
Bills setting fiscal 1986 funding levels for federal agencies are stalled in Congress, but not for lack of effort. **Page 18**

Technology

New microcomputer software from Laboratory Technologies Corp. analyzes chromatography data in production applications. **Page 33**

Books

"Global Energy: Assessing the Future" takes a look at long-term patterns in energy supply and use; "Hazardous and Toxic Materials: Safe Handling & Disposal" is primer on hazardous waste. **Page 35**



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Chemical Earnings Fall For Fourth Consecutive Quarter

David Webber, C&EN New York

Bludgeoned by imports, hobbled by prices, and undermined by weak sectors of the economy, the chemical industry staggered through a third quarter that resulted in most cases in lower earnings from operations than in last year's third quarter. For several companies, extensive restructuring charges reduced the bottom line even further.

Taking into consideration operations alone, net income in the chemical industry declined an average of 19% in third-quarter 1985 from the year-earlier period, based on the results of 29 of the 30 largest chemical producers. (The other firm, Chesebrough-Pond's, is excluded from this and other composite calculations because its acquisition of Stauffer Chemical in March renders year-to-year comparisons meaningless at this time.) The group's aggregate sales were about the same as a year earlier. It was the fourth consecutive quarter in which the group's earnings total fell compared to the year before.

Many companies in a group of 21 diversified manufacturers with substantial chemical operations also reported sales and earnings declines in the quarter. Most likewise reported poor to mediocre performance by their chemical segments, and aggregate net income for the group, buffered somewhat by nonchemical results, dropped 4%. Sales were down 2%, compared to third-quarter 1984.

Poor performance by petrochemical product lines also compounded the woes of energy companies, already hurting from the oil slump. A group of 17 reported that composite third-quarter net income de-

Chemical industry leaders for the third quarter . . .

Sales				Earnings[a]				Profitability		
Rank 1985		$ Millions	Rank 1984		$ Millions	Rank 1984		Earnings as % of sales	Rank 1984
1	Dow Chemical	$2873.0	1	Dow Chemical	$107.0	1	International Flavors	14.3%	1
2	Union Carbide	2254.0	2	PPG Industries	73.9	4	Freeport-McMoRan	11.0	3
3	Monsanto	1741.0	4	Union Carbide	58.0	3	Nalco Chemical	11.0	2
4	W. R. Grace	1734.3	3	Celanese	47.0	8	Ethyl	9.1	6
5	PPG Industries	1040.0	5	Air Products	38.1	12	Air Products	8.0	11
6	American Cyanamid	852.3	6	Ethyl	35.1	9	Loctite	7.8	4
7	Celanese	758.0	7	Rohm & Haas	34.8	6	Morton Thiokol	7.5	14
8	Chesebrough-Pond's	746.0	15	Morton Thiokol	34.8	14	Rohm & Haas	7.3	9
9	Hercules	613.8	8	Hercules	33.3	5	PPG Industries	7.1	13
10	National Distillers	557.5	9	Monsanto	31.0	2	Petrolite	6.9	5

. . . and for the first nine months of 1985

Sales				Earnings[a]				Profitability		
Rank 1985		$ Millions	Rank 1984		$ Millions	Rank 1984		Earnings as % of sales	Rank 1984
1	Dow Chemical	$8628.0	1	Dow Chemical	$372.0	2	International Flavors	14.5%	1
2	Union Carbide	6684.0	2	PPG Industries	243.7	4	Freeport-McMoRan	11.1	4
3	W. R. Grace	5246.9	4	Monsanto	242.0	1	Nalco Chemical	11.0	2
4	Monsanto	4992.0	3	Union Carbide	214.0	3	Ethyl	8.5	12
5	PPG Industries	3250.0	5	Celanese	128.0	9	Petrolite	8.2	6
6	American Cyanamid	2646.0	6	Rohm & Haas	116.5	6	Air Products	8.0	8
7	Celanese	2286.0	7	Air Products	111.4	10	Loctite	7.8	3
8	Chesebrough-Pond's	2010.0	17	Hercules	111.1	5	PPG Industries	7.5	13
9	Hercules	1951.0	8	American Cyanamid	104.2	7	Rohm & Haas	7.4	5
10	National Distillers	1639.9	9	W. R. Grace	102.2	8	Morton Thiokol	6.7	16

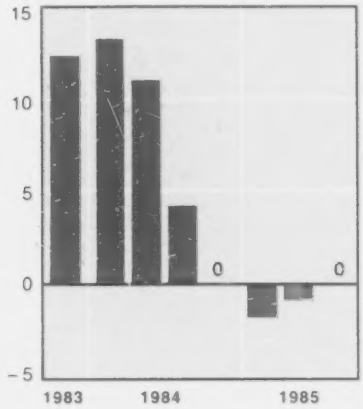
a After taxes. **Note:** Based on 30 companies listed on page 12.

Chemical industry 1985 third-quarter results

- Sales were flat
- Earnings fell 19%
- Profit margins were 3.9%
- Production was up 3.4%
- Prices rose just 0.6%

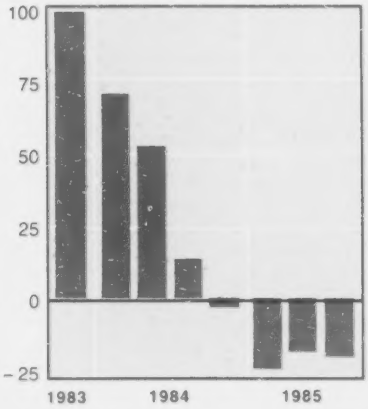
Sales

% change from year-earlier quarter



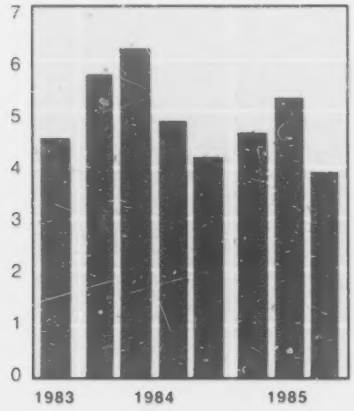
Earnings

% change from year-earlier quarter



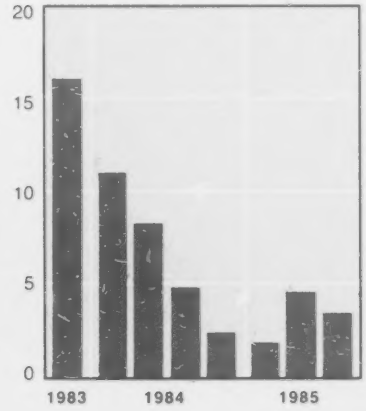
Profit margins

After-tax earnings as % of sales



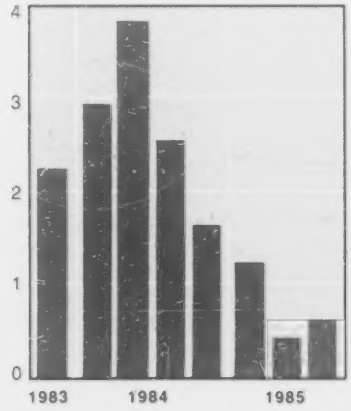
Production

% change from year-earlier quarter



Prices

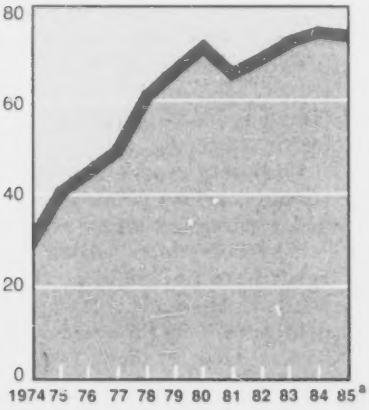
% change from year-earlier quarter



Sales in 1985 will fall 1%, and earnings will decline 17%, lowering profit margins considerably

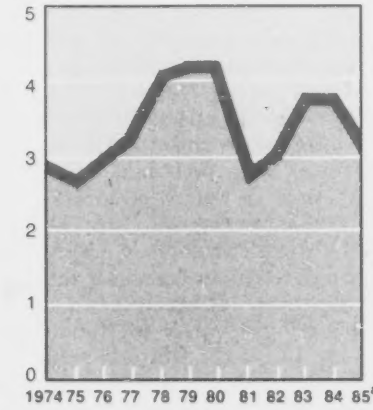
Annual sales

$ Billions



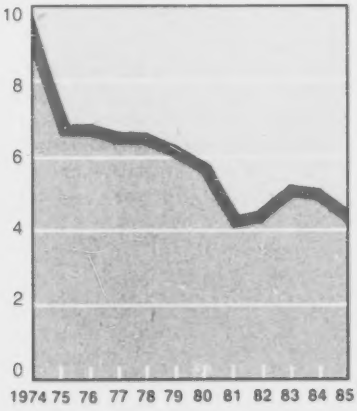
Annual earnings

$ Billions



Annual profit margins

After-tax earnings as % of sales



a C&EN estimates. **Note:** All sales, earnings, and profit-margin data are based on combined results of the 30 companies listed on page 12.

Composite earnings for chemical producers fell 19% in third quarter

	THIRD-QUARTER 1985						NINE-MONTHS 1985			
	Sales	Earnings[a]	Change from 1984		Profit margin[b]		Sales	Earnings[a]	Change from 1984	
	($ millions)		Sales	Earnings	1985	1984	($ millions)		Sales	Earnings[a]
Air Products[c]	$ 476.4	$ 38.1	14%	20%	8.0%	7.6%	$ 1,394.1	$ 111.4	6%	5%
American Cyanamid[c]	852.3	29.3	−1	−23	3.4	4.4	2,646.0	104.2	0	−27
Celanese[c]	758.0	47.0	−6	24	6.2	4.7	2,286.0	128.0	−9	−1
Chemed	96.9	5.2	9	15	5.4	5.1	278.5	17.5	9	63
Chesebrough-Pond's[c]	746.0	21.7	82	−32	2.9	7.8	2,010.0	60.4	82	0
Crompton & Knowles	56.6	1.8	3	1	3.1	3.1	174.0	5.3	−2	−11
Dow Chemical[c]	2,873.0	107.0	2	18	3.7	3.2	8,628.0	372.0	−1	−6
Essex Chemical	46.1	1.4	5	−37	3.1	5.2	150.4	7.3	10	−9
Ethyl	386.0	35.1	−9	−1	9.1	8.4	1,167.7	99.2	−9	4
First Mississippi	65.4	−0.3	−1	def	def	5.7	208.4	9.5	−7	−44
Freeport-McMoRan	161.5	17.8	−21	−17	11.0	10.5	567.1	63.1	−9	−5
H. B. Fuller	117.0	3.9	2	12	3.3	3.0	341.3	9.1	1	−5
W. R. Grace[c]	1,734.3	24.8	3	−29	1.4	2.1	5,246.9	102.2	5	−28
Hercules[c]	613.8	33.3	−9	−40	5.4	8.3	1,951.0	111.1	0	−27
International Flavors	127.6	18.2	8	8	14.3	14.2	378.7	55.1	2	−3
International Minerals[c]	315.1	4.1	−15	−87	1.3	8.4	1,194.0	51.9	−3	−37
Loctite	60.8	4.7	3	−22	7.8	10.3	174.7	13.6	−6	−33
Lubrizol	201.4	11.5	−2	−24	5.7	7.4	701.9	46.8	10	−13
Monsanto[c]	1,741.0	31.0	9	−60	1.8	4.9	4,992.0	242.0	−3	−39
Morton Thiokol[c]	460.5	34.8	5	14	7.5	6.9	1,408.2	94.8	3	22
Nalco Chemical	167.2	18.4	3	−3	11.0	11.8	497.6	54.8	0	−2
National Distillers[c]	557.5	17.9	5	88	3.2	1.8	1,639.9	42.4	−1	−30
Olin[c]	427.1	5.5	−1	−58	1.3	3.0	1,360.5	31.3	−1	−52
Pennwalt	246.2	−14.7	1	def	def	5.1	755.0	5.0	2	−85
Petrolite	74.4	5.1	−2	−24	6.9	8.9	228.8	18.7	5	0
PPG Industries[c]	1,040.0	73.9	−5	−4	7.1	7.0	3,250.0	243.7	2	3
Reichhold Chemicals	208.6	0.7	6	−89	0.3	3.2	628.9	5.2	1	−74
Rohm & Haas[c]	474.1	34.8	−2	−10	7.3	8.0	1,580.5	116.5	0	−21
Union Carbide[c]	2,254.0	58.0	−4	−25	2.6	3.3	6,684.0	214.0	−6	−28
Witco Chemical	366.6	14.9	−2	−7	4.1	4.3	1,101.1	40.6	−2	−13
Total 15 largest companies	**$14,577.2**	**$539.5**	**0%**	**−16%**	**3.7%**	**4.4%**	**$44,261.1**	**$1965.5**	**−1%**	**−19%**
Second 15 companies	**$ 2,382.4**	**$123.0**	**−2%**	**−28%**	**5.2%**	**7.0%**	**$ 7,353.8**	**$ 450.8**	**−1%**	**−13%**
GRAND TOTAL	**$16,959.6**	**$663.4**	**0%**	**−19%**	**3.9%**	**4.8%**	**$51,614.9**	**$2416.3**	**−1%**	**−18%**

a Excludes all significant extraordinary and nonrecurring items. b After-tax income as a percentage of sales. c One of 15 largest firms. def = deficit.

creased 5% on a sales decline of 5%, compared to the year-earlier period.

Although showing some signs of softening, the still-mighty dollar combined with the steady increase of chemical production overseas has had the effect of swelling the volume of imports and reducing markets for exports (down 1% in August from a year earlier, despite a slight overall improvement in the chemical trade balance that month).

At the same time, the greater quantity of imports, penetration in U.S. markets of which has been aided by the dollar's high value, has tended to disrupt the efforts of U.S. chemical producers to raise prices. In addition, continued low feedstock prices nourish downstream buyers' expectations of pass-along savings, maintaining what has become a long-lived buyer's market in petrochemicals. "There's no psychology for chemical price increases," the president of a large chemical company remarked in a recent conversation.

In their comments on the quarter's performance, several chemical company chief executives note the deleterious impact of the dollar's value on sales, although they see hope in suggestions that the U.S. currency's surge has peaked. "As we move into the fourth quarter and prepare to enter 1986, we are encouraged by the fact that the U.S. dollar has weakened since last spring," says Richard J. Mahoney, president and chief executive officer of Monsanto, net income for which fell 60% in the third quarter.

Weakness in several major downstream markets continued to hold down sales. The worst effects were felt by companies selling into the agriculture and semiconductor industries. The reeling farm economy continues to be hobbled by the financial woes of many farmers, and the semiconductor business, upset by overcapacity and sharp competition, has been marked all this year by widespread and severe employ-

NINE-MONTHS 1985		12-MONTH RUNNING DATA			
Profit margin[b]		Change from 1984		Profit margin	
1985	1984	Sales	Earnings	1985	1984
8.0%	8.1%	5%	2%	7.8%	8.1%
3.9	5.4	−1	−24	4.3	5.6
5.6	5.2	−7	−12	5.1	5.4
6.3	4.2	10	−13	4.6	5.9
3.0	5.5	0	−54	2.4	5.1
3.0	3.3	−4	−5	3.2	3.2
4.3	4.5	−3	−9	3.9	4.1
4.9	5.9	4	27	5.4	4.4
8.5	7.4	−11	11	8.9	7.2
4.5	7.6	−2	−25	5.2	6.8
11.1	10.7	−5	−1	11.7	11.2
2.7	2.8	1	−4	2.8	3.0
1.9	2.8	6	−34	1.7	2.7
5.7	7.8	−1	−25	5.8	7.7
14.5	15.2	3	−1	14.0	14.5
4.3	6.8	−1	−36	4.6	7.1
7.8	10.9	−4	−15	9.6	10.9
6.7	8.4	8	−7	6.9	7.9
4.8	7.8	−3	−41	4.3	7.0
6.7	5.7	1	−4	6.7	7.0
11.0	11.2	−4	−5	10.8	10.9
2.6	3.7	−12	−32	2.4	3.2
2.3	4.8	−3	−45	2.4	4.3
0.7	4.5	2	−58	2.1	5.0
8.2	8.6	5	10	8.5	8.1
7.5	7.4	1	3	7.4	7.3
0.8	3.2	0	−56	1.4	3.1
7.4	9.3	1	−21	7.0	8.9
3.2	4.2	−4	−26	3.0	3.9
3.7	4.2	−1	−11	3.7	4.2
4.4%	**5.4%**	**−2%**	**−22%**	**4.1%**	**5.2%**
6.1%	**7.0%**	**−1%**	**−8%**	**6.4%**	**6.9%**
4.7%	**5.7%**	**−2%**	**−19%**	**4.5%**	**5.4%**

ment reductions and production cutbacks.

Representative of the problems facing chemical producers is First Mississippi Corp., which reported a $258,000 loss in the third quarter. The primary cause of the deficit, the company says, was lower prices for ammonia, urea, oil, and natural gas. Selling into those weak markets was trouble enough, but hurricanes, turnaround maintenance, and other unusual expenses compounded the difficulties. As a result, First Mississippi's industrial chemicals segment posted a 71% decline in pretax operating profits, and its oil and gas unit, battling a 20% decline in average selling prices, turned in a 77% drop in operating profits. Worst was the fertilizer business, for which a 25% decrease in average selling prices led to a loss on operations.

The ailing fertilizer business's depredations on companies' third-quarter earnings were widespread. A chief contributor to American Cyanamid's 23% decline in net income, for instance, was a loss by the firm's agricultural group, primarily the result of the fertilizer slump. W. R. Grace blames its 29% earnings decrease on fertilizer; its agricultural chemical unit lost $4.8 million after taxes, compared to a $2.4 million operating profit in the year-earlier quarter.

The farm recession also hurt the performance of pesticides and other agricultural chemicals badly. For instance, Chesebrough-Pond's agricultural products division (part of this year's Stauffer Chemical acquisition) reported lower sales for crop protection chemicals and hybrid corn, sorghum, and sunflower seed.

For Monsanto, whose agricultural products accounted for a whopping 88% of operating profits over the first nine months of the year, the failure of farmers to buy as much Roundup and Lasso pesticides and other star products as before contributed to a 60% drop in third-quarter net income. During the quarter, agricultural product sales fell 18% and pretax income plummeted 45%. Such poor performance by the company's key business segment meant there was little to compensate for a $22 million pretax loss by the electronic materials unit along with pretax profit declines of 36% for polymer products, 13% for fibers and intermediates, and 6% for industrial chemicals. It also left little to cover the deficits recorded by the company's increasingly expensive biological sciences unit, which, with its gargantuan appetite for R&D funds, lost $33 million in the quarter and $87 million during the first nine months of the year. In 1984, by comparison, the unit's deficit over nine months was $61 million before taxes.

For Rohm & Haas, net income dropped 10% in the third quarter. "Operating losses in our agricultural and electronic chemicals businesses and higher interest expenses were the primary causes of the lower third-quarter earnings," says Vincent L. Gregory Jr., chairman of the company. The poorer results, which had been expected (C&EN, Sept. 23, page 6), were due in large part to lower-than-anticipated late season sales of the company's Blazer herbicide for soybeans and $4.1 million in startup costs for its hybrid seed wheat business. Consequently, Rohm & Haas' agricultural chemicals segment reported a net

Ground rules for C&EN earnings analysis

C&EN's quarterly report on financial performance of the U.S. chemical industry contains data from the 30 largest U.S. basic chemical companies and from 38 oil and diversified companies, each with more than $200 million in annual chemical sales.

To be included in the table of basic chemical producers, a company must have at least 40% of its sales in chemicals, and its chemical operations must be the largest single portion of the company operations. That is why Du Pont, for example, is not included as a basic chemical producer but rather as a diversified manufacturer.

In referring to chemical sales, C&EN means sales of those chemicals whose molecular composition has been changed in the course of manufacture. Hence, chemical sales include those of traditional categories of basic petrochemicals and inorganics, organic intermediates and inorganic compounds, polymers such as plastics and fibers, agricultural chemicals, and specialty derivatives.

In listing earnings, the survey gives after-tax income for continuing operations before nonrecurring items and extraordinary charges. Foreign currency translations are included.

Earnings for energy and diversified firms also declined

	% chemical sales	THIRD-QUARTER 1985 Sales ($ millions)	Earnings[a]	Change from 1984 Sales	Earnings	Profit margin[b] 1985	1984	NINE-MONTHS 1985 Sales ($ millions)	Earnings[a]	Change from 1984 Sales	Earnings	Profit margin[b] 1985	1984
OIL AND GAS COMPANIES													
American Petrofina	15%	$ 599.3	$ 10.2	6%	462%	1.7%	0.3%	$ 1,759.8	$ 20.4	9%	−27%	1.2%	1.7%
Amoco	10	7,200.0	490.0	1	−18	6.8	8.5	21,500.0	1563.0	−2	−9	7.3	7.8
Atlantic Richfield	10	5,502.0	317.0	−9	110	5.8	2.5	17,040.0	1178.0	−8	12	6.9	5.6
Chevron	4	10,300.0	245.0	−28	−28	2.4	2.4	34,600.0	946.0	1	−14	2.7	3.2
Diamond Shamrock	21	1,053.6	52.8	−7	−14	5.0	5.4	3,038.4	157.8	−11	−15	5.2	5.4
Exxon	7	22,298.0	1130.0	−5	−11	5.1	5.4	68,531.0	3200.0	−6	−22	4.7	5.6
HNG/Internorth	5	2,851.7	38.9	67	10	1.4	2.1	8,027.0	165.2	86	−22	2.1	4.9
Kerr-McGee	13	789.6	39.8	−6	84	5.0	2.6	2,445.0	108.9	−7	9	4.5	3.8
Mobil	4	14,400.0	392.0	−4	65	2.7	1.6	44,200.0	1123.0	−2	14	2.5	2.2
Occidental Petroleum	7	3,383.1	200.8	−14	31	5.9	3.9	10,758.5	421.3	−7	10	3.9	3.3
Phillips Petroleum	15	4,000.0	123.0	7	−43	3.1	5.8	12,000.0	336.0	2	−48	2.8	5.5
Shell Oil	16	5,424.0	389.0	−3	−13	7.2	8.0	15,774.0	1022.0	−4	−14	6.5	7.3
Standard Oil (Ohio)	5	3,440.0	346.0	19	−4	10.1	12.4	10,130.0	1079.0	12	−10	10.7	13.2
Sun Co.	3	3,330.0	115.0	−3	−6	3.5	3.6	10,680.0	388.0	−8	−3	3.6	3.5
Tenneco	7	3,773.0	105.0	12	−17	2.8	3.7	11,254.0	332.0	2	−34	3.0	4.5
Texaco	2	11,300.0	301.0	−7	18	2.7	2.1	35,000.0	785.0	−3	−3	2.2	2.3
Unocal	10	3,040.0	67.9	5	−63	2.2	6.3	8,720.0	605.8	2	11	6.9	6.4
DIVERSIFIED MANUFACTURERS													
Allied-Signal	15	1933.0	95.0	−25	−25	4.9	4.9	7,467.0	381.0	−8	−2	5.1	4.8
Aluminum Co. of America	4	1,282.2	57.1	−11	−5	4.5	4.2	3,980.1	104.3	−10	−61	2.6	6.2
Borden	28	1,199.6	51.3	5	13	4.3	4.0	3,469.6	132.3	1	2	3.8	3.8
Borg-Warner	21	963.6	53.1	2	1	5.5	5.6	2,935.7	146.7	0	−2	5.0	5.1
Du Pont	32	8,529.0	285.0	−2	−10	3.3	3.6	25,320.0	789.0	−6	−30	3.1	4.2
Engelhard	23	533.4	9.5	−14	−47	1.8	2.9	1,588.4	31.5	−15	−39	2.0	2.8
FMC	39	767.8	59.0	3	−6	7.7	8.4	2,404.9	157.5	−3	−11	6.5	7.1
General Electric	7	6,520.0	575.0	−3	2	8.8	8.4	19,560.0	1676.0	−2	3	8.6	8.2
Georgia-Pacific	10	1,752.0	58.0	−0	−28	3.3	4.6	5,126.0	174.0	4	−8	3.4	3.9
B. F. Goodrich	35	834.9	0.8	−2	−97	0.1	2.9	2,400.0	15.0	−4	−78	0.6	2.7
Kaiser Aluminum	18	526.4	−14.2	−4	def	def	def	1,516.1	−43.6	−9	def	def	2.5
Koppers	45	518.4	20.1	−1	−22	3.9	4.9	1,358.3	15.6	2	−53	1.1	2.5
Eli Lilly	23	787.9	122.1	11	9	15.5	15.7	2,453.6	393.1	5	6	16.0	16.0
3M	15	2,023.0	173.0	2	−13	8.6	9.9	5,883.0	516.0	1	−9	8.8	9.7
Merck	17	855.8	136.1	0	13	15.9	14.1	2,589.5	405.5	0	7	15.7	14.5
NL Industries	35	360.4	5.0	6	−22	1.4	1.9	1,045.9	16.3	4	44	1.6	1.1
Pfizer	10	1,012.8	155.5	2	16	15.4	13.5	2,966.6	440.4	2	16	14.8	13.1
Tyler	33	233.6	5.9	−5	−40	2.5	4.0	693.5	14.7	−2	−34	2.1	3.2
Upjohn	13	474.7	45.7	9	49	9.6	7.1	1,494.3	152.9	4	5	10.2	10.1
U.S. Steel	6	5,000.0	61.0	6	−3	1.2	1.3	14,600.0	94.0	1	−73	0.6	2.4
Vulcan Materials	26	274.1	28.7	64	0	10.5	17.2	742.2	59.3	2	−3	8.0	8.4

a From continuing operations excluding nonrecurring and extraordinary items. b Earnings as a percentage of sales. def = deficit.

loss of $8.4 million on a one-third sales decline. Over nine months, the unit's earnings were down 55% on an 8% sales decrease.

There were some bright spots in the industry, though. Coatings, for example, did well in the quarter. PPG Industries, whose overall net income declined 4%, posted sales gains for automotive finishes and industrial coatings. Morton Thiokol, which reported a 14% rise in earnings, says it had strong growth in sales of customized performance coatings and powder coatings.

Industrial gases also performed fairly well in the third quarter. Union Carbide, preoccupied with its massive restructuring program, managed a pretax gain of 3% on industrial gases on a 2% sales increase. And Air Products' pretax profit on industrial gases rose 18% on a sales rise of 10%.

The smaller half of the 30 largest chemical companies were particularly hard hit in the third quarter, with composite earnings down 28% from third-quarter 1984, compared with 16% for the 15 biggest firms. Net income at Petrolite, for instance, fell 24% in the quarter (which ended for Petrolite on July 31). Although

sales of oil field chemicals, the company's chief product line, were up for the first nine months of the company's fiscal year, they were lower than expected on an international basis in the quarter. At Nalco Chemical, water treatment and process-related businesses were stable, chief executive W. H. Clark Jr. says, but oil field chemicals were damaging. The result: a 3% decline in net income. The same problem helped lower the earnings of NL Industries, a diversified firm, 22% in the third quarter. Continued weakness in domestic drilling activity—the active rig count was 20% lower than a year earlier—caused a $3.2 million operating loss in NL's petroleum services segment.

Loctite's net income fell 22% compared to the year-earlier quarter. Reichhold Chemicals reported an 89% decline in earnings. And Witco Chemical earnings dropped 7% in the quarter.

Diversified firms with substantial chemical operations also had their problems in the third quarter. For example, B. F. Goodrich's net income plunged 97% from the year-earlier period. The chief culprit was tires, the company's largest single segment, operating income of which fell 53%. But little help came from the second largest unit, polyvinyl chloride. PVC operating income rose slightly in the third quarter, mostly thanks to cost-cutting measures, but over the first nine months, profits were only half of what they were at the same point a year ago.

Kaiser Aluminum & Chemical posted a $14.2 million loss in the quarter; over the first nine months of this year, the company lost $43.6 million. Most of the deficit stems from the continuing aluminum slump, but the company's industrial chemicals business also lost money. Poor markets for the division's basic chemical and oil-related catalyst lines, compounded by costs arising from now-resolved labor difficulties at several plants, were the cause.

FMC's sales of performance chemicals fell 8% in the third quarter to $119 million, reducing profitability. As at so many other firms, the agriculture market was blamed. Sales of crop protection chemicals fell, in this case, FMC says, because of a less severe infestation by corn borers than in 1984. Sales of the company's industrial chemicals increased 10%, but that was chiefly because of the July acquisition of Lithium Corp. of America. Nonetheless, the segment's profits dropped because of lower phosphate sales and gold production. Overall, FMC's net income declined 6% in the third quarter on a sales gain of 3%.

Du Pont's net income declined, too. In the third quarter it dropped 10%, and during the first nine months of the year, earnings declined 30% from the similar period last year. Year-to-date, Du Pont's nonenergy businesses have performed poorly. After-tax operating income, excluding a special gain, fell throughout those segments: biomedical products, down 37%; industrial and consumer products, down 31%; fibers, down 35%; polymer products, down 37%; and agricultural and industrial chemicals, down 57%. □

Petrochemicals fared poorly in third quarter

Oil and gas companies, already beleaguered by the continuing energy slump, received no help from their petrochemical operations in the third quarter of 1985. For a group of seven energy companies that break out after-tax earnings by product segment, net income from chemicals dropped a composite 23% in the period compared with the same three-month period a year before.

The bulk of the oil and gas companies' chemical activities tends to be in petrochemicals, so segment results provide a good indication of how petrochemicals in particular are performing.

At Exxon, earnings from worldwide chemical operations fell 36% to $59 million in the quarter. The company explains that, although sales volumes increased, lower margins, higher costs, and excess capacity led to the decrease in net income. Over the first nine months of the year, the decline was worse; the net income of $176 million from chemicals was 49% less than income during last year's first nine months.

Amoco also notes that its higher sales volume failed to offset the adverse effects of lower margins. The result: a 4% decline in net earnings on chemicals to $51 million. On a positive note, the company says it improved capacity utilization of its chemical and polymer facilities to 88% from 77% in third-quarter 1985.

Shell, which recorded a 62% drop in chemical earnings, gives similar reasons for the decline. "The major factor in the declines was continuing lower margins in base chemicals, primarily olefins," says John F. Bookout, president. "Current prices for ethylene are the lowest in recent years. Other factors included lower agricultural chemical volumes and higher operating expenses."

Mobil's third-quarter chemical earnings improved, thanks mostly to the performance of its Saudi Arabian joint venture. Over nine months, however, net income from chemicals was down 39%.

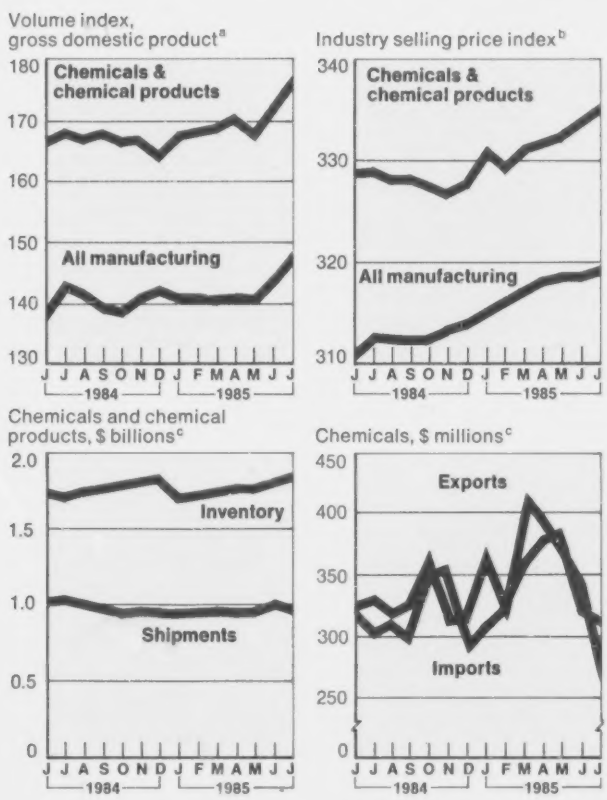
Standard Oil (Ohio) reported a pretax increase in chemicals operating income. The gain was partly from better results by the company's nitrogen chemicals business. The other reason for improvement was that the company sold its money-losing agricultural products business in the first quarter of the year.

AFTER-TAX EARNINGS ON CHEMICAL OPERATIONS

	Third quarter			First nine months		
$ Millions	1985	1984	% change	1985	1984	% change
Amoco	$51	$53	−4%	$150	$169	−11%
Atlantic Richfield	30	35	−14	63	82	−23
Chevron	−2	1	def	33	48	−31
Exxon	59	92	−36	176	346	−49
Mobil	24	15	60	35	57	−39
Shell	14	37	−62	63	116	−46
Texaco	4	4	0	7	13	−46

def = deficit.

Organics Lead Canadian Chemical Upturn



a Seasonally adjusted, 1971 = 100. b 1971 = 100. c For 1984, $1.00 = $1.31 Canadian; for 1985, $1.00 = $1.36 Canadian. **Source:** Statistics Canada

Inorganic chemical production weak

Production, thousands of metric tons	1984	First seven months 1985	First seven months 1984	% change 1984–85
ORGANICS				
Ethylene	1464	966	831	16.2%
Propylene	665	363	398	−8.7
Benzene	557	375	333	12.6
Toluene	430	265	240	10.5
Xylene	417	237	235	0.9
PLASTICS				
Polyethylene, low density	529	411	274	50.4
Polyethylene, high density	227	135	129	4.1
Polyvinyl chloride	252	169	150	12.4
INORGANICS				
Hydrochloric acid	161	91	94	−3.3
Nitric acid	1100	664	658	0.8
Phosphoric acid[a]	691	381	428	−10.9
Sulfuric acid	4053	2310	2424	−4.7
Ammonia, anhydrous	3493	2029	2111	−3.9
Ammonium phosphate	1383	797	839	−5.0
Chlorine	1424	826	816	1.2
Sodium hydroxide	1575	915	907	0.9

a 100% P_2O_5. **Source:** Statistics Canada

After looking at their bottom lines, some Canadian chemical companies may be hard-pressed to agree, but the chemical industry in Canada is, in fact, perking along so far this year in somewhat better shape than last year. Of those chemicals charted by Statistics Canada, more scored production increases than declines through the first seven months of the year.

Much of the strength lies in ethylene and its polymer derivatives. Inorganics, however, have been generally weak across the board.

Increases in polyethylene and polyvinyl chloride output have supported a 16% jump in Canadian ethylene production through the first seven months. The outstanding performer has been low-density polyethylene. Output through July jumped a whopping 50% (411,000 metric tons compared with 274,000 metric tons in the first seven months of 1984).

The primary reason behind this meteoric rise in LDPE production, of course, is Novacor Chemicals' new 270,000 metric ton-per-year linear low-density polyethylene plant, which came on stream at Joffre, Alta., in mid-1984. Although higher demand in the domestic market absorbed some of the LDPE flood, most of it moved into the export market. Through mid-year, Canadian polyethylene exports (both low- and high-density) were up 160% over last year.

Now, Canadian polyethylene producers will have to make room for Dow Chemical Canada's new plant at Fort Saskatchewan, Alta. That 120,000 metric-ton unit is designed primarily as a LLDPE plant, but it also can produce HDPE, much of which probably will be earmarked for the U.S. market.

Although polyethylene export volumes have been up, profits on those sales have been nothing to brag about. Union Carbide Canada chairman W. Norman Kissick blames, in large part, a continuing and severe cost-price squeeze in polyethylene for a nine-month operating loss of $4.9 million on sales of $348 million. That's before the company took a $75 million extraordinary loss related to its decision to divest its polyethylene business, a plant in Moore Township, near Sarnia, Ont.

These polyethylene developments have obscured an impressive performance by PVC. Through the first seven months, Canadian PVC output was up 12% to 169,000 metric tons. Exports to the U.S. were running 30% higher than last year. Meanwhile, Canadian demand for PVC was also up, thanks primarily to improved housing starts. Canadian housing is having its best year since 1981, and that is reflected in higher PVC consumption for pipe and siding.

The strong housing market is having a beneficial impact on other segments of the chemical industry as well. Paints and varnishes, adhesives, and other plastics products are benefiting from the robust market.

Earl Anderson, New York

Money Bills for Federal Agencies Continue To Stall in Congress

Both House and Senate have passed versions of fiscal 1986 bills, but most have been derailed in conference by a balanced budget amendment

The current fiscal year, 1986, began a month and a half ago, but by press time Congress had managed to enact only two of the 13 appropriation bills that set actual funding levels for the federal agencies. Not that it hasn't been trying; the House has passed 11 and the Senate 10 of the appropriations bills.

But conference action to reconcile differences between each branch's version of the bills—usually a simple and quite fast procedure—has been derailed by a balanced budget amendment attached to a routine measure raising the public debt limit.

It's hard to discern a trend for R&D funding in what has happened so far. The House disagreed with the Administration over the proper funding level for many programs, sometimes approving more money, sometimes less than was requested (C&EN, Aug. 5, page 17). And the Senate, though generally agreeing with the House on which requests should be increased or decreased, doesn't agree on how much they should be changed.

For example, the Administration wanted to cut funding for the National Institutes of Health 6%, or $281 million, to $4.6 billion. The House opted for a $335 million increase, the Senate $315 million. Overall, the Senate provided $2.1 billion to support at least 12,662 noncompeting research grants; $960 million to support at least 6000 new and competing research grants; $500

Senate allows more for R&D than House—but not much

$ Millions	1986 Senate	1986 House	1986 Request	1985
NASA	**$ 7,630.0**	**$ 7,666.0**	**$ 7,886.0**	**$ 7,491.4**
Space flight control and data communications	3,375.0	3,402.9	3,509.9	3,601.8
R&D	2,760.1	2,756.8	2,881.8	2,422.6
Management activities	1,354.9	1,367.0	1,345.0	1,317.0
Facilities	139.7	139.3	149.3	150.0
HHS	**5,652.9**	**5,667.5**	**5,040.9**	**5,327.5**
NIH	5,228.1	5,247.8	4,631.8	4,912.7
FDA	424.8	419.7	409.1	414.8
Energy	**4,397.4**	**4,170.9**	**4,155.0**	**4,207.1**
Energy supply R&D	2,066.9	1,928.6	1,952.1	1,999.0
Nuclear	631.9	607.6	657.6	623.0
Supporting research and technical analysis	502.3	514.0	480.8	477.8
Magnetic fusion	382.0	385.0	390.0	437.0
Environment	330.7	229.7	227.7	230.5
Solar	161.7	147.0	148.0	178.0
Electric energy systems and storage	30.1	30.1	26.1	40.1
Geothermal	27.2	26.2	25.2	31.8
Weapons R&D	**1,291.6**	**1,072.4**	**1,211.6**	**1,027.3**
General science and research	**679.4**	**685.5**	**685.4**	**730.0**
Fossil R&D	**292.2**	**299.5**	**160.5**	**274.9**
Conservation R&D	**167.5**	**173.9**	**142.7**	**156.0**
NSF	**1,521.6**	**1,522.9**	**1,568.4**	**1,499.0**
Research and related activities	1,348.0	1,347.2	1,397.7	1,301.9
Antarctic programs	113.8	115.1	120.1	110.1
Science education activities	59.8	60.6	50.6	87.0
EPA	**1,478.2**	**1,491.2**	**1,362.6**	**1,309.8**
Salaries and expenses[a]	680.8	690.2	654.7	656.3
Abatement, control, and compliance	571.2	577.6	495.5	460.5
R&D	226.2	223.4	212.4	193.0
Commerce	**1,346.1**	**1,329.9**	**1,139.0**	**1,337.3**
NOAA	1,131.7	1,121.2	934.3	1,113.1
NBS	125.9	124.0	120.0	124.0
PTO	88.5	84.7	84.7	100.2
USDA	**928.1**	**905.5**	**845.8**	**912.4**
Agricultural Research Service	501.0	492.8	483.3	494.1
Cooperative State Research Service	290.4	276.4	251.2	285.8
Forest Service Research	125.4	125.0	104.2	121.0
National Agricultural Library	11.3	11.3	11.1	11.5
TOTAL	**$22,954.3**	**$22,753.9**	**$22,001.7**	**$22,084.5**

a Includes in-house research funding.

million to support 533 research centers at their historical levels; and $597 million for intramural research within NIH. The Senate accepted an Administration proposal that would freeze every NIH grantee's indirect cost rate at the rate in effect on Dec. 31, 1984. The House rejected the proposal.

Both chambers reduced the Administration's $2.9 billion budget request for the National Aeronautics & Space Administration's R&D programs, the House by $125 million, the Senate by $122 million. The final Senate figure would have been $30 million higher except that during floor consideration of the HUD-Independent Agencies Appropriation bill, an amendment was offered and accepted calling for a 1.1% across-the-board reduction in all funding contained in the bill.

That amendment also had an adverse effect on the National Science Foundation. The Senate Appropriations Committee had approved $1.4 billion for the foundation's research and related activities in fiscal 1986, a figure that was already $37 million below the budget request, although $16 million over the House allowance. After the across-the-board decrease, the Senate figure was just $1 million more than the House's $1.35 billion. NSF says that for it to come as close as possible to its original budget request of $1.6 billion, conferees on the bill are going to have to delete the across-the-board reduction, accept the House figures for science education and for the Antarctic program, and accept the Senate's original figure for research and related activities.

Even with the 1.1% reduction, the Senate approved $226 million for extramural R&D programs for the Environmental Protection Agency. That figure is 1% over the House allowance, 6% over the budget request, and 17% over fiscal 1985 funding. The Senate added $2 million to the budget request for additional groundwater and hazardous waste research, $1.5 million for toxic sediment removal studies in the Great Lakes, and $2.9 million for air pollution studies. One is an epidemiological study that can detect significant changes in mortality or morbidity caused by pollutants regulated by current ambient air standards.

The Senate was more generous than either the House or the Administration when it came to funding Department of Agriculture research programs. It provided a total of $928 million, 3% more than the House allowed, 9% more than the Administration requested, and 2% more than 1985 funding. The same can be said for the Department of Commerce research programs. The total Senate figure of $1.3 billion is 1% more than the House allowance, 18% more than the budget request, and just about equal to 1985 funding.

The House, which by law must act first on appropriation bills, passed the Department of Defense appropriation bill on Oct. 30. It contains $33.1 billion for defense R&D programs in fiscal 1986. That figure represents a 6% increase over fiscal 1985 funding, quite a bit less than the requested 26% increase.

In past years, the usual practice has been for the conferees on any one appropriation bill to average the House and Senate numbers and come up with a final total. However, the past may not be any guide this year.

For example, the Administration requested $1.2 billion for the Department of Energy's weapons R&D program in fiscal 1986. The House allowed $1.1 billion, the Senate $1.3 billion. The final figure was less than either of those. The same thing happened in reverse to the budget for DOE's supporting research and technical analysis program, which among other things supports chemical sciences and materials sciences. The Administration requested $481 million for the program. The House allowed $514 million, the Senate $502 million. Yet the final conference figure was $518 million. That includes $96 million for chemical sciences, 2% more than both the request and 1985 funding. Funding for materials sciences is set at close to $197 million, 8% more than requested and 2% more than 1985. The materials funding includes $8 million for the national center for chemical research and $11 million for the center for advanced materials research.

Janice Long, Washington

Federal Alert—new regulations

This listing highlights regulations as published in the Federal Register *from Oct. 7 to Nov. 1. Complete information is available on the appropriate page number.*

PROPOSED

Consumer Product Safety Commission—Publishes semiannual list of regulations expected over next 12 months, including action on urea-formaldehyde resins; comments on agenda by Dec. 31 (Oct. 29, page 44882).

Environmental Protection Agency—Begins comprehensive study of methylene chloride to determine need for regulatory controls to reduce exposures; comments by Dec. 16 (Oct. 17, page 42037).

Produces semiannual agenda of nearly 300 regulations agency expects to complete or propose over next year (Oct 29, page 44644).

Labor Department—Lists regulatory agenda for next 12 months including upcoming rules on hazardous chemicals from Occupational Safety & Health Administration (Oct. 29, page 44302).

Nuclear Regulatory Commission—Updates semiannual list of regulations with all actions proposed or under consideration during next 12 months (Oct. 29, page 44992).

FINAL

Environmental Protection Agency—Lists chemical waste products from production of dinitrotoluene, toluenediamine, and toluene diisocyanate as hazardous and subject to special regulation; effective April 23, 1986 (Oct. 23, page 42936).

Occupational Safety & Health Administration—Amends ethylene oxide standard to exempt labels on pesticide products regulated by federal pesticide laws; effective Jan. 9, 1986 (Oct. 11, page 41491).

NOTICES

Environmental Protection Agency—Intends to list 1,3-butadiene as potential toxic air pollutant and may set emission standards; comments by Dec. 9 (Oct. 10, page 41466).

Publishes inventory of "open dumps," those operating waste sites that do not comply with Resource Conservation & Recovery Act criteria for solid waste disposal sites (Oct. 16, page 41952).

Begins special review action on pesticide carbofuran with intention to cancel registration because of bird toxicity; comments by Dec. 2 (Oct. 16, page 41938).

Occupational Safety & Health Administration—Plans to form panel of interested parties to negotiate proposed rule for occupational exposure to 4,4′-methylenedianiline (MDA); comments by Nov. 21 (Oct. 22, page 42789).